On Tolema peregrina *n. sp.* And The East Australian Warm Water Current

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The species described below adds a genus to the New Zealand Recent fauna and at the same time provides further evidence of the effectiveness of the Notonectian or East Australian warm water current in establishing species of East Australian origin in New Zealand seas.

The list of molluscs which can be assumed to have reached New Zealand in this manner is now a lengthy one, and to it can be added a number of East Australian fish records (Powell, 1938, pp. 151-156), the starfish *Asterodiscus truncatus* Coleman (Powell, 1937, p. 78), a deep-water pipe-sponge, *Chondropsis syringianus*, and a new species of frog-crab, *Lyreidus* (the latter two, previously unpublished records).

The chief references to the effects of this warm water current upon the New Zealand fauna are contained in the following references: Finlay, 1925, 1926 and 1931; Fleming, 1944; and Powell, 1927, 1937 and 1940.

The species assumed to have been derived through the agency of the Notonectian current fall into three categories: (1) descendants of an early (Upper Pliocene) influx which has become firmly established in New Zealand but the modern representatives have developed new characteristics warranting specific differentiation; (2) species that are firmly established in New Zealand but are specifically inseparable from East Australian stock; (3) species which may be considered as having reached here and developed as odd individuals, but in insufficient numbers to cause the species to become permanently established.

Finlay (1926) and later Fleming (1944) have pointed out that the Castlecliffian Upper Pliocene marks the first advent of this new East Australian element in our fauna and presumably dates the first effective operation of this current in respect to New Zealand.

The faunal evidence indicates that either the current was more effective in its presumed initial Upper Pliocene stages or that the larvæ of certain species, particularly of the *Cymatiidæ*, come across regularly and in considerable numbers, thus nullifying the potential isolation factor and keeping the species true to type on each side of the Tasman.

TOLEMA Iredale, 1929.

Rec. Aust. Mus. 17 (4), p. 186.

Type (o.d.): *Purpura sertata* Hedley.

In addition to the New South Wales deep water genotype there are several closely allied Japanese species, notably *lischkeana* (Dunker) and *japonica* (Dunker).

Iredale's genus was provided for the normally coiled members of *Latiaxis* sensu lato. Typical *Latiaxis* is thus restricted to the bizarre, flat to concave-spired, partially uncoiled shells grouped around the Japanese genotype *L. mawæ* (Griffith & Pidgeon).

These shells belong to the *Magilidæ* (= *Coralliophilidæ*) and are closely related to the *Muricidæ*.

Tolema peregrina n. sp. Pl. 19, fig. 3.

Shell large for the genus, biconical with sharply angulate whorls, long rather straight canal and dense sculpture of erect to recurved hollow spines. Whorls six, exclusive of the protoconch, which is eroded. Spire about two-thirds height of aperture plus canal. Whorls sharply angled from above the middle to about two-thirds whorl height on later whorls. The peripheral angle is coronated by prominent, closely-spaced, almost overlapping, vertically compressed, hollow, recurved spines, which have also an upward tilt. They number about 14 on the antepenultimate, 18 on the penultimate and 29 on the body-whorl. On the shoulder there are from three to four spiral series of hollow upcurved spines. Below the shoulder on the spire-whorls there are three to four similar rows of spines with a fifth emergent towards the termination of the last whorl. On the body-whorl below the peripheral carina there are fifteen spiral rows of almost evenly developed hollow upcurved spines, the lowest strongly developed on a sweepingly arcuate, narrowly ridged fasciole which defines a broadly open deep false umbilicus. The anterior canal is long, narrowly open, and is only slightly recurved. Colour of exterior dull creamy buff. Interior of aperture white, glazed, with a lilac tinge inside the canal and on the lower extremity of the pillar.

Height, 51.0 mm.; diameter, 33.5 mm.

Locality: Trawled on *Atrina* beds near the entrance to Hauraki Gulf, probably in about 20-25 fathoms.

Holotype: Presented by Miss N. Houghton.

The New Zealand *Tolema* is very close to the New South Wales *sertata*, but as far as can be judged from the sole available New Zealand example, a different regional species has developed. Actual specimens of *sertata* compared with Iredale's figures (1929, Pl. 41, figs. 3 and 8) show the New South Wales species to be remarkably constant.

The New Zealand shell differs from *sertata* in having a proportionately shorter spire, more evenly developed spiral rows of spines, not alternately strong and weak, up to four instead of three spirals on the shoulder, and an almost straight to slightly recurved anterior canal.

Hedley (1903, p. 383, fig. 96) gave an excellent drawing of the protoconch of *sertata*, which shows a perfect "sinusigera," indicating a larva of the lengthy free-swimming type.

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Fig. 1. *Tolema japonica* (Dunker), Japan, 47 x 29 mm.
Fig. 2. *Tolema sertata* (Hedley, 1903). New South Wales, 49.5 x 33 mm.
Fig. 3. *Tolema peregrina* n. sp. Hauraki Gulf, New Zealand, 51.0 x 33.5 mm. (Holotype).